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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 694,074	10 20 2000	Rebecca J. Jackman	H0498 7085 TJO	2002

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EXAMINER

PARKER, FREDERICK JOHN

ART UNIT

PAPER NUMBER

1762

DATE MAILED: 04 29 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/694,074

Applicant(s)

Examiner

Group Art Unit

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 3/28/03
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-90 is/are pending in the application.
- Of the above claim(s) 34, 35, 37, 39, 40, 43, 44, 46-49, 63, 61-82 is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-33, 36, 38, 41, 42, 45, 50-62, 64-66, 83-90 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____
- ☐ Copies of the certified copies of the priority documents have been received

in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 5
- ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

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DETAILED ACTION

Election/Restriction

1. Applicant's election with traverse of claims 1-66, 83-90 in Paper No. 11 is acknowledged. The traversal is on the ground(s) that "a single search and examination covering all claims would not place undue burden on the Examiner.". This is not found persuasive because Applicants original claims presented thirteen separate and distinct inventions/ species. This would place a serious burden on the examiner not only because of the large number of inventions requiring separate search areas, but because of the complexity of patentability issues facing the Examiner in areas entirely unfamiliar to him. For example, patentability issues related to article and masking coating methods are distinct and unrelated; similarly, each distinct species represents a potential burden in the form of complex issues related to ascertaining patentability.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claims 2-33,36,38,41,42,45,50,54-62,64,65,84-90 are objected to because of the following informalities: In the dependant claims, "A" should be replaced

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by "The" for proper reference to the claim on which it depends. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claim 54 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claim 54 is vague and indefinite because it is unclear how a step of "replacing the masking system" can include not shielding/ masking the article since there must be a maskant applied.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. Claims 1-33,36,38,41,42,45,50-52, 64-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hembree et al US 6181144.

Hembree et al teach forming probe cards comprising the steps of applying to an article substrate an elastomeric polymer mask layer 80, e.g. polyimide, forming openings therein corresponding to the pattern of openings 82, and forming the conductive metal contacts by electroplating or electroless plating processes (per claims 36,41,42,45). Since the thickness of the mask layer 80 is 1-5 mils, the pattern openings must have a thickness dimension, i.e. "a dimension" which is less than 1 millimeter since 1-5 mils is less than 1 millimeter/ 500 microns per claims 1 & 16. While the elastomeric mask is not stated to be cohesive, it must

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be so in order for the openings to be formed therein. While the mask is not stated to be in "conformal contact" or "flexible", since it is the same material as Applicants (claim 22), the properties would accordingly be the same as required by claims 7,21. While the article appears to be planar, it is not so limited, and the carrying out of the process on a non-planar surface would have been obvious because of the inherent flexible properties of the elastomeric mask. Removal of the mask to give the probe card utility per claim 11 or forming plural masks to form plural features (e.g. bumps, conductive patterns, etc) per claims 12-15 would have been an obvious variation within the purview of the skilled artisan. The mask openings would correspond to the dimensions of the desired features, and such openings would have been optimized and formed by one skilled in the art so that the conductive features meet the desired dimensional tolerances per claims 23-33. As to claim 38, it is stated on column 6, 6-16 that it is known to form conductors on substrates using CVD which employs a metal vapor in a gas phase which results in deposition of the suspended metal from the entraining gas phase which broadly meets the limitations of the claim, and it would have been obvious to use such a method in place of a plating process to form conductive features in conjunction with the elastomeric masked surface

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because both methods are stated to be capable of forming such conductive features.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the method of Hembree et al using a conformal elastomer mask in which are formed openings corresponding to dimensions of features to be subsequently applied by, for example, electroless plating, in order to form probe cards having conductive features of the required dimensions and tolerances.

7. Claims 53-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parsons US 4093754.

Parsons (abstract; col. 1, 48 to col. 2, 25; col. 4, 28-45) teaches applying a liquid elastomeric flexible maskant ("masking system") in conformal contact to an article surface to form masked and unmasked surfaces; impinging a dry particulate abrading stream ("an agent" which is a dry agent per specification page 5) to render unmasked portions visually distinguishable; removing the maskant layer; and repeating the masking and abrasion steps with a differing pattern to form a dual density appearance. Overlapping or reorienting a second application of maskant over a part of the surface previously masked,

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followed by another abrading step would have been an obvious variation to produce aesthetic/ decorative variations of the dual density appearance required by the reference.

As to claims 56-59, application of several superimposed layers of elastomeric masking system would have been an obvious variation to allow reliable masking of a surface to prevent the abrasive from wearing away the mask and detrimentally expose surface not intended to be treated. The removal and addition of masking system to various portions of the substrate to form a desired design per claims 60-62 would have been obvious to form desired designs by abrasive treatment.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Parsons by utilizing multiple superimposed layers of an elastomeric masking system prior to abrasive treatment to form different, visually distinguishable patterns on a surface.

8. Claims 83, 87-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon et al US 5486452.

Gordon et al teaches a method for immunological analysis in which a test surface comprises porous solid surface supports onto which extremely small dots

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(1 microliter or less) of antigens or immunoglobulin (e.g. molecules) are applied by suitable means, the applied liquid dot covalently linking with the support which inhibits spreading. See column 2, 4-65; col. 3, 12-16; col. 5, 52-54; col. 6, 5-61; figure). The method therefore immobilizes the molecules on isolated regions of the support while leaving intervening regions therebetween free of molecules. While the number of molecules applied is not cited as "less than about 1×10^5 " or the additional ranges of claims 87-90, it is apparent from the teachings that very small amounts are needed, but a wide range of amounts may be suitable for a specific test. Since Applicant's range is simply a matter of degree, and it is virtually impossible to determine the number of molecules of the reference, it is the Examiner's position that the reference, at least in some point in application of the small droplets, would meet this range limitation. Furthermore, Applicants' range appears to be merely optimization of amount of material to be added while preventing intersection of adjacent droplets, which would have been an obvious parameter to one skilled in the art based upon the teachings of Gordon et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the method of Gordon et al using sufficient liquid droplets in order to prevent spread of the liquid between assay regions.

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9. Claims 84-86 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon et al US 5486452 in view of Wohlstadter et al US 6207369.

Gordon et al is cited for the above reasons, which are incorporated herein. Masks are not taught. However, Wohlstadter teaches similar droplet immunoassay systems in which on column 60, top, it is disclosed to use a masking means which align in registry with test particles on a base onto which reagents for testing are applied. It is apparent the masks are used to align the direction of the liquid to the test region. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Gordon et al by incorporating the mask of Wohlstadter et al to ensure registry with the test assay regions.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred J. Parker whose telephone number is (703) 308-3474.

A handwritten signature in cursive script, appearing to read 'Fred J. Parker', followed by a horizontal line extending to the right.

Fred J. Parker

**FRED J. PARKER
PRIMARY EXAMINER**

April 28, 2003

9-694074